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MOLLUSCA OF THE YELLOWSTONE PARK, TETON PARK AND JACKSON HOLE REGION

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Notwithstanding the great area covered by Yellowstone National Park, Teton National Park and Jackson Hole, Wyoming, and the fact that each year for many years past the region has been visited by thousands of people, including many naturalists, surprisingly little has been published about the mollusks of the region. My notes mention only the following published records: Jackson Lake is the type locality of *Pomatiopsis robusta* Walker, 1908, *Lymnaea jacksonensis* F. C. Baker, 1907, and *Carinifex jacksonensis* Henderson, 1932. *Lymnaea caperata warthini* Baker, 1923, was described from hot springs just below the Upper Yellowstone Falls, and has been reported nowhere else. The type locality of *Oreohelix cooperi maxima* Pilsbry, 1916, is the northern part of Yellowstone Park, ten miles southwest of Jardine, Montana, though it was also reported from Grade Canyon, near Cokeville, Wyoming. Brues, in his paper on the mollusks of hot springs (Proc. Natl. Acad. of Science and Arts, LIX, 416-418, 1924), reported an imperfect shell of *Amnicola* sp. in a caddis case from a hot, sulphurous pool near Junction Butte; *Physa heterostropha* (dwarf form same as described by Lea as *P. aurea* from a hot spring at Bath, Virginia) in water of a temperature of 96° Fahr., heavily charged with silica, at the outlet of Firehole Lake; and *Lymnaea palustris* Müll. from a spring with a temperature of 80° to 96° Fahr., near Mary's Bay, on the north shore of Yellowstone Lake; all in Yellowstone Park. His *Physa* was almost certainly incorrectly determined. To check the

identification we visited the locality in 1932, but failed to find any mollusks there for determination. His *Lymnaea* was probably the subspecies *nuttalliana*, as that is the common form in the Yellowstone drainage and the only one likely to be identified as *palustris*, except possibly *wyomingensis*. Stearns, 1893, reported that *Lymnaea bulimoides* Lea was found in Yellowstone Park by the Hayden Survey. This may be doubted. In my report on the mollusks of Colorado, Utah, Montana, Idaho and Wyoming, 1924, I reported *Physa blandi* Lea (as identified by Bryant Walker) and *Lymnaea palustris haydeni* Lea (as identified by Baker), from the Madison River, a few miles within the western edge of Yellowstone Park. The latter should be referred to *L. binneyi* Tryon, as is true also of material from several Idaho localities which was recorded as *haydeni*, with which view Mr. Baker now agrees. The true *haydeni* seems to be an exact synonym or scarcely distinguishable form of *nuttalliana*, which is common throughout Montana. In the same publication I reported also *Vallonia cyclophorella* Ancey, *Zonitoides arboreus* Say and *Gonyodiscus cronkhitei anthonyi* (Pilsbry), all from seven miles north of Moran, east of Jackson Lake, Wyoming.

Since 1924, with various assistants, I have made several hasty trips through the region. As a result I can now report the following: Slough on Yellowstone River about six miles south of Canyon Junction, *Lymnaea palustris nuttalliana* Lea (not typical, according to Baker). Swamp near Gardiner River, east of Mammoth Hot Springs, *Pisidium concinnulum* Sterki (identified by Sterki), *Aplexa hypnorum* (L.), *Lymnaea palustris nuttalliana* Lea (not typical), *Agriolimax agrestis* (W. G. Binney) and *Gonyodiscus cronkhitei anthonyi* (Pilsbry). Aspen grove a mile or so northwest of Mammoth Hotel, *Euconulus fulvus alaskensis* (Pilsbry), *Gonyodiscus cronkhitei cronkhitei* (Newcomb), *Pupilla muscorum* L., *Vallonia cyclophorella* Ancey, *Vertigo* sp., *Vitrina alaskana* Dall, *Zonitoides arboreus* Say and the Rocky Mountain species which has been generally known as *Oreohelix cooperi* (W. G. Binney), but which has been found to be

distinct from the true *cooperi* of the Black Hills, South Dakota, and is called *Oreohelix subrudis* (Pfr.) by Dr. Pilsbry. This *Oreohelix* occurs also in abundance under the heavy leaves of *Balsamorhiza* and other plants, along the south margin of Jupiter Terrace and along the mountain slope west of the terraces from south of Orange Spring to and up Clematis Gulch, west of Mammoth Hotel, and thence northward. At one place in Clematis Gulch it occurs associated with *Oreohelix berryi* Pilsbry but perfectly distinct therefrom, the two showing no tendency toward cross-breeding or intergrading. We have received from Professor Vasco M. Tanner several small specimens which seem referable to *Lymnaea stagnalis jugularis* Say, obtained in Swan Lake, Yellowstone Park.

North of Yellowstone Park, *Lymnaea binneyi* occurs in Yellowstone River, four miles south of Livingston. We found *Lymnaea caperata* Say in a slough three miles south of Livingston and another 22 miles south, along the Yellowstone River, so it may be expected in the Park.

South of the Park, in Jackson Lake at Moran, in addition to the three species originally described from there, as hereinbefore indicated, we found a single specimen of *Valvata humeralis californica* Pilsbry. Several miles north of Moran we found *Physa traskii* Lea (as identified by Bryant Walker) and *Gyraulus vermicularis* (Gould). In a slough just north of Jackson we obtained *Aplexa hypnorum* (L.) and *Lymnaea palustris wyomingensis* Baker. On the mountain slope above this slough *Oreohelix depressa* (Cockerell) was found in quantity by Mr. Hugo G. Rodeck, assistant curator of the University of Colorado Museum. At Jenny Lake, in Teton National Park, Mrs. Henderson and I found *Lymnaea* related to *L. montana* Elrod, and large, undetermined *Physa*.

A display collection of the shells of the region has been prepared at the University of Colorado Museum and donated to the Museum at Mammoth, Yellowstone Park.

